2. Method according to claim 1, characterized in that the pressure difference is regulated by varying the evacuation power.

3. (Amended) Method according to [one of the preceding claims] claim 1, characterized in that the low-pressure or atmospheric-pressure treatment chamber [(4)] has a heated process chamber which remains heated, and in particular is kept at process temperature, during the loading or unloading.

4. (Amended) Method according to [one of the preceding claims] claim 1, characterized in that coating of the semiconductor substrates is carried out in the low-pressure or atmospheric-pressure treatment chamber [(4)] in particular by means of reaction gases fed to the gas phase.

5. (Amended) Method according to [one of the preceding claims] claim 1, characterized in that an MOCVD process is carried out in the low-pressure or atmospheric-pressure treatment chamber [(4)].

6. (Amended) Method for treating semiconductor substrates, in which the in particular uncoated semiconductor substrates are fed through a loading lock [(1)] to a treatment arrangement, which loading lock [(1)] adjoins a transfer chamber [(2)] from which one or more treatment chambers [(3, 4, 5)] can be loaded with the semiconductor substrates which are to be treated, for which purpose a connecting door [(7)] between transfer chamber [(2)] and treatment chamber [(3)] is opened, characterized in that a low-pressure or atmospheric-pressure process is operated in at least one of the treatment chambers [(4)], and the transfer chamber [(2)] is flooded with an inert gas before the connecting door [(8)] associated with this treatment chamber [(4)] is opened, the pressure difference between the transfer chamber [(2)] and the treatment chamber [(4)] being maintained through the fact that, with the gas flows into the transfer chamber [(2)], on the one hand, and into the treatment chamber [(4)], on the other hand, remaining constant, the pressure in transfer

chamber [(2)] and/or treatment chamber [(4)] is controlled by varying the evacuation power.

7. (Amended) Method according to [one of the preceding claims] claim 6, characterized in that, before the connecting door is opened, a stable pressure is in each case set in the transfer chamber [(2)] and the treatment chamber [(4)], the pressure in the transfer chamber [(2)] being higher than the pressure in the treatment chamber [(4)] by a pressure difference.

8. (Amended) Method according to [one of the preceding claims] claim 6, characterized in that the pressure difference is approximately 0.1 to 5 mbar.

9. (Amended) Method according to [one of the preceding claims] claim 6, characterized in that the level of the purge gas flow in the treatment chamber [(4)] and/or the transfer chamber [(2)] increases according to the total pressure in the corresponding chamber [(2, 4)] and follows a predetermined functional relationship or is stored in a table of values in an electronic control unit.

10. (Amended) Device for carrying out the method according to [one of the preceding claims] claim 6, having a loading lock [(1)] which adjoins a transfer chamber [(2)], in particular a transfer chamber which can be evacuated, and having at least one treatment chamber [(3)] for treatment of a semiconductor substrate, characterized in that at least one treatment chamber [(4)] is configured so as to treat semiconductor substrates at low pressure or atmospheric pressure, it being possible for the transfer chamber [(2)] for loading these chambers [(4)] to be purged with an inert gas at the corresponding location(s), in that during loading a gas stream flows into the treatment chamber [(4)] as a result of a pressure difference.

11. (Amended) Device according to claim 10, characterized in that the low-pressure or atmospheric-pressure treatment chamber [(4)] is an MOCVD reactor with a heatable process chamber.

12. (Amended) Device according to [one of the preceding claims] claim 11, characterized by a control element for setting respective purge gas flows into both the treatment chamber [(4)] and the transfer chamber [(2)] and for regulating the pressures in the treatment chamber [(4)] and the transfer chamber [(2)].

13. (Amended) Device according to [one of the preceding claims] claim 12, characterized by an evacuation means [(17)] associated with in each case one treatment chamber [(4)] and an evacuation means [(13)] associated with the transfer chamber [(2)], which evacuation means [(13, 17)] are controlled by the control element.

14. (Amended) Device according to [one of the preceding claims] claim 13, characterized in that the purge gas outlet [(11, 15)] is closer to the connecting door [(7)] than the gas outlet line [(12, 16)] associated with the evacuation means [(13, 17)].

Clean Version of Replacement Claims

1. Method for treating semiconductor substrates, in which the in particular uncoated semiconductor substrates are fed through a loading lock to a treatment arrangement, which loading lock adjoins a transfer chamber from which, in turn, a multiplicity of treatment chambers can be loaded with the semiconductor substrates which are to be treated, for which purpose, first of all, the transfer chamber and the treatment chamber are evacuated, and then a connecting door between transfer chamber and treatment chamber is opened, in which method a low-pressure or atmospheric-pressure process is operated in at least one of the treatment chambers, and the transfer chamber is flooded with an inert gas before the connecting door associated with this treatment chamber is opened, both the treatment chamber and the transfer chamber, before the connecting door is opened, being purged, in each case at a predefined pressure, with a respective purge gas which remains constant,

in such a manner that, when the connecting door is opened, a gas stream flows from the transfer chamber into the treatment chamber and is maintained during loading of the treatment chamber through the fact that the pressure in the transfer chamber is slightly higher than the pressure in the treatment chamber.

2. Method according to claim 1, characterized in that the pressure difference is regulated by varying the evacuation power.

3. Method according to claim 1, characterized in that the low-pressure or atmospheric-pressure treatment chamber has a heated process chamber which remains heated, and in particular is kept at process temperature, during the loading or unloading.

4. Method according to claim 1, characterized in that coating of the semiconductor substrates is carried out in the low-pressure or atmospheric-pressure treatment chamber in particular by means of reaction gases fed to the gas phase.

5. Method according to claim 1, characterized in that an MOCVD process is carried out in the low-pressure or atmospheric-pressure treatment chamber.

6. Method for treating semiconductor substrates, in which the in particular uncoated semiconductor substrates are fed through a loading lock to a treatment arrangement, which loading lock adjoins a transfer chamber from which one or more treatment chambers can be loaded with the semiconductor substrates which are to be treated, for which purpose a connecting door between transfer chamber and treatment chamber is opened, characterized in that a low-pressure or atmospheric-pressure process is operated in at least one of the treatment chambers, and the transfer chamber is flooded with an inert gas before the connecting door associated with this treatment chamber is opened, the pressure difference between the transfer chamber and the treatment chamber being maintained through the fact that, with the gas flows into the transfer chamber, on the one hand, and into the treatment

chamber, on the other hand, remaining constant, the pressure in transfer chamber and/or treatment chamber is controlled by varying the evacuation power.

7. Method according to claim 6, characterized in that, before the connecting door is opened, a stable pressure is in each case set in the transfer chamber and the treatment chamber, the pressure in the transfer chamber being higher than the pressure in the treatment chamber by a pressure difference.

8. Method according to claim 6, characterized in that the pressure difference is approximately 0.1 to 5 mbar.

9. Method according to claim 6, characterized in that the level of the purge gas flow in the treatment chamber and/or the transfer chamber increases according to the total pressure in the corresponding chamber and follows a predetermined functional relationship or is stored in a table of values in an electronic control unit.

10. Device for carrying out the method according to claim 6, having a loading lock which adjoins a transfer chamber, in particular a transfer chamber which can be evacuated, and having at least one treatment chamber for treatment of a semiconductor substrate, characterized in that at least one treatment chamber is configured so as to treat semiconductor substrates at low pressure or atmospheric pressure, it being possible for the transfer chamber for loading these chambers to be purged with an inert gas at the corresponding location(s), in that during loading a gas stream flows into the treatment chamber as a result of a pressure difference.

11. Device according to claim 10, characterized in that the low-pressure or atmospheric-pressure treatment chamber is an MOCVD reactor with a heatable process chamber.

12. Device according to claim 11, characterized by a control element for setting respective purge gas flows into both the treatment chamber and the transfer

chamber and for regulating the pressures in the treatment chamber and the transfer chamber.

13. Device according to claim 12, characterized by an evacuation means associated with in each case one treatment chamber and an evacuation means associated with the transfer chamber, which evacuation means are controlled by the control element.

14. Device according to claim 13, characterized in that the purge gas outlet is closer to the connecting door than the gas outlet line associated with the evacuation means.

Respectfully submitted,

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